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B P I S A E RESEARCH ACTIVITIES

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PLANT INDUSTRY STATION, BELTSVILLE, MD.

JULY 1949

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Fertilizers, Farming, and the Future

During the next 10 years research on the interactions of various plant-growth factors will have a greater impact on the use of fertilizer than fertilizer studies as such, Dr. Robert M. Salter told members of the American Plant Food Council, June 20. Speaking before the annual convention at Bretton Woods, N.H., Dr. Salter outlined the background and the principles involved in this recent development.

He said a series of experiments started at the Ohio Agricultural Experiment Station in 1928 raised the question of what might result from experiments that simultaneously varied soil fertility, water, germ plasm, rate of planting, cultivation, and other cultural practices.

One of the first and most dramatic answers came from corn experiments set up in North Carolina in 1944. There the best practice combinations consistently produced yields of more than 70 bushels an acre on land that had a former average of 20 bushels. Dr. Salter pointed out that basic production costs--plowing, seedbed preparation, seed, planting, and cultivation--are the same whether a field yields 50 or 100 bushels to the acre. Except for increased harvesting expense, the added fertilizer is the only cost that should be charged against the extra bushels.

So far we have no more than scratched the surface with this combined approach to research, Dr. Salter told the Plant Food Council. He added, we have by no means absorbed the possibilities of still further increasing crop yields as we learn to combine in optimum degree the various factors of crop production under the diverse environments of soil and climate. We now recognize that past ideas of what have contributed adequate fertility must be revised drastically upward if we are to strive for top yields through this combined approach.

(Mimeographed copies of the complete speech can be obtained by writing Information Division, Plant Industry Station, Beltsville, Md.)

Mosaic in Hard Red Winter Wheat Region Calls for Research

Considerable research will be necessary to devise methods suitable for testing lines of hard red winter wheat resistant to mosaic disease, in the opinion of H. H. McKinney, senior pathologist (CC&D).

Noting that incomplete estimates now indicate larger wheat losses from the disease than ever before in western Kansas and southwestern Nebraska, Mr. McKinney points out that mosaic has been known in that region for 30 years. It was observed first in Nebraska in 1919 and found in Kansas 3 years later.

In 1922 and in 1932 reports from Nebraska and Kansas indicated aphid transmission of wheat mosaic virus, and last year R. E. Atkinson of the Colorado station reported that the wheat mosaic virus found in eastern Colorado is transmitted by the spring grain aphid or green bug (Toxoptera graminum).

Bureau studies on wheat and grass mosaic viruses from Kansas, Nebraska, and Oklahoma collections show at least three distinct groups of species, all belonging to or closely allied with streak mosaic viruses Marmor virgatum. They can be easily transmitted by manual inoculation in both cool and warm summer temperatures. The streak-mosaic virus is less resistant and seems to have a more limited host range than the bromegrass mosaic virus. The type most prevalent in the wheat fields has been transmitted to corn, barley, rye, oats, and wheat relatives in the genus Triticum and also to several wild grasses but not to Bromus inermis. Some varieties of oats seem to be resistant, and rye has shown considerable resistance. Unlike viruses of wheat mosaic that occur east of the Missouri River, these do not seem to overseason in the soil.

Because of the erratic appearance of the streak-mosaic, two extensive wheat varietal tests at the Kansas station met with complete failure in 1931 and 1933.

The virus of bromegrass mosaic Marmor graminis is very active and resistant. Manual inoculations show that it has a wide host range, including some of the dicot species. Although the virus is readily transmitted to wheat by manual methods of inoculation, it has never been isolated from field collections of wheat mosaic. The only known source of this virus in nature is in a small patch of Bromus inermis at Manhattan, Kans.

Potent Plant-Growth Regulators from Pollen

Improvement in the purification methods developed by Dr. John W. Mitchell and associates (F&VC&D) to obtain plant-growth-regulating substances from pollen is yielding more potent extracts. One of these from sweet corn is 10 times more potent than any previously obtained from this source. The bio-assays show that corn pollen contains substances with growth-regulating characteristics that differ from indoleacetic acid most commonly found in plant material.

Pollen from wild partridge-pea plants has been shown to contain an unusually high concentration of plant-growth-regulating substance.

This pollen has been obtained in relatively large quantities by means of pollen traps, which collected it from the legs of honeybees as they brought it to the hive.

Experimental Grader Tests Potatoes for Heaviness

To sort out the heavier potatoes that make better bakers, engineers in the Division of Farm Buildings and Rural Housing, in cooperation with the Colorado Experiment Station, have developed a grader for separating potatoes on the basis of specific gravity. The research is a part of an RMA project on new methods of grading, packaging, and shipping to maintain potato quality.

The new machine, designed to receive potatoes from an ordinary washer and grader, consists of a tank containing a salt solution with a density of about 1.084. Tests show potatoes, which fail to float in brine of this density, are the most satisfactory for baking.

The potatoes are conveyed into the bottom of one end of the brine tank from the washer by a draper chain, which runs diagonally the whole length of the tank and out over the top at the other end. A divider to keep the heavier potatoes moving up the right side of the conveyor also runs the length of the tank and just 6 inches below the surface of the water. Three curved metal skimmers or deflectors guide floating potatoes to the left-hand side of the tank. A metal diverter narrowing the channel at the deep end assists a uniform flow of the salt solution. The current is made by movement of the draper chain over the divider board.

From the brine tank the potatoes are run into a spray washer to remove the salt solution. Tests show a satisfactory pressure of 40 to 50 pounds needed for this purpose can be built up with water from a city system run through an ordinary garden hose through 20 fan-shape spray nozzles.

In tests, sinkers and floaters sacked separately have been run through the machine again, the sinkers at one time and the floaters at another. In all trials no floater potato has appeared when the sinkers have been re-run and not more than 5 percent of the floaters have come out as sinkers on the re-run.

Barn Improvement Cuts Tobacco-Curing Costs

At the Tobacco Branch Experiment Station, Oxford, N.C., Dr. O. A. Brown and his associates (FE) have found that the tobacco farmer can save half and more of the costs of the curing process through improvements in the barn.

Their tests show that coal requirements for curing tobacco in a barn like those on many farms can be cut from approximately 2,400 pounds to a little more than 800 pounds and the costs can be reduced from \$18 to \$6 for the same amount of tobacco.

These savings can be made through the installation of insulation, controlled ventilation, and a more efficient heat-distributing system. The findings also show that a barn properly constructed or renovated and equipped with an adequate heating system will give consistent results in efficient curing irrespective of the weather.

Sand Lovegrass Produces More Beef

Native sand lovegrass (Eragrostis trichodes) is one of the more palatable, productive, and nutritious grasses used for seeding on cultivated and abandoned farm land in the southern Great Plains, report Albert L. Brown and E. H. McElvain, U. S. Southern Great Plains Field Station, Woodward, Okla.

The beef-producing qualities of sand lovegrass have been clearly demonstrated in grazing tests with yearling steers conducted since 1941 on the Southern Plains Experimental Range near Woodward. Sand lovegrass pasture has produced an average of 422 pounds of live-weight gain per steer and 108 pounds per acre. This is an advantage of 30 pounds per head and 73 pounds per acre over native range. The sand lovegrass also carried 108 more head per section. Weeping lovegrass (Eragrostis curvula) carried 69 more head per section than sand lovegrass; consequently, it produced 25 pounds more gain per acre, even though the steers gained 120 pounds less per head.

In tests of year-long nutritive value, sand lovegrass proved superior to the famous short grasses, blue grama and buffalo, in average content of phosphorus, and contained more vitamin A in the spring, summer, and fall months, and contained more protein than the short grasses in April and October but less during other months. Not only does sand lovegrass produce good yields of palatable forage from early April to late October, but it has the ability of the short grasses to retain about 50 percent of its high feed value when winter-cured. Most grasses keep only about 25 percent of their summer feed value when dormant.

This grass is adapted to most sandy areas of the Great Plains from western Nebraska southward through Kansas and Oklahoma to central and southwestern Texas. During the past 10 years the grass has been introduced and is thriving on similar areas in the eastern one-third of New Mexico, as well as in the southern part of Colorado east of the Rocky Mountains. Ease of establishment, high yield and quality of seed, and ease of harvest are factors that should promote the widespread use of sand lovegrass.

Compounds Tested as Fungicides

Synthetic organic compounds prepared by BE&PQ for study as possible insecticides are being carefully screened for fungicidal properties by Dr. M. C. Goldsworthy (F&VC&D).

From preliminary tests of 506 of these compounds, Dr. Goldsworthy has selected 10 that have promising fungicidal properties and relatively little phytotoxic effect for further investigation to determine their usefulness as sprays for orchard disease control.

He has found 47 compounds that have good fungicidal properties but 33 of these caused some degree of foliage injury. Some of these materials may prove useful however in combatting soil- or seed-borne fungus parasites, organisms that destroy stored food or those that cause deterioration to fabrics or lumber. It is also possible that some of the compounds may prove useful as bactericides, plant-growth regulators, or weed killers. All of the compounds are listed, and detailed results of Dr. Goldsworthy's tests are given in Supplement 182, The Plant Disease Reporter, March 30, 1949.

New Hybrid Barley Variety Released

Release of Moore, a new high-yielding stiff straw barley developed cooperatively by the Bureau and the Wisconsin Experiment Station is announced by Dr. R. G. Shands (CC&D).

The new variety comes from a cross involving three parents-- Wisconsin Barbless and Chevron and Olli, an early variety of good malting quality introduced from Finland.

Moore is a white six-rowed, smooth-awned spring variety with moderately compact head and widely spreading long awns. Because the heads tend to remain erect at maturity loss from breaking off in the field before harvest is low. The hulls are thin and stick tight to the kernel.

Tests show the new barley to be moderately resistant to stem rust, powdery mildew, and Helminthosporium sativum, the cause of spot blotch and foot rot. It is susceptible to smut, scab stripe, net blotch, and leaf rust.

Malting quality of Moore is superior to Wisconsin Barbless in all factors measured. It is satisfactory for a brewer's type of malt.

Moore is adapted to Wisconsin, northern Illinois, northern Iowa, central and southern Minnesota, and to the higher rainfall areas of the eastern Dakotas.

Western Strawberry Variety Aids in Eastern Study

The Marshall strawberry, a widely grown variety in the West, is proving extremely useful in strawberry research in the East to find leading varieties in this section that are free from the yellows virus disease.

Studies by J. B. Demaree (F&VC&D) show that symptoms of the disease are largely or entirely masked in many eastern varieties. The only symptoms in some plants are dwarfing, with perhaps some cupping of leaves and interveinal yellowing, in others complete or nearly complete suppression of stolon production. In contrast, the Marshall variety shows unmistakable symptoms of the disease. When infected this variety develops prominent crinkling, curling, and upward cupping and dwarfing of the leaves, marginal and interveinal yellowing of leaflets, and stunting of the entire plant. This makes the Marshall especially valuable for inoculation tests to determine presence of the virus in varieties where the symptoms are masked.

Alaskan Assignment for Lefebvre

Dr. Camille L. Lefebvre (FC&D) has returned to Alaska to complete a study on the storage diseases of potatoes, a problem which he started during a 5-month tour of duty in Alaska in 1948. Then he found that potatoes, one of the main cash crops in the Territory, are seriously affected by two diseases, blackleg and ring rot. Growers requested his assistance to help correct the problem. Dr. Lefebvre will return to Beltsville in July.

Long Staple Cotton Testing Expanded

Mill run tests on new strains of long staple cotton will supplement the annual fiber and spinning tests from experimental plots. The fine spinners who have agreed to run the tests are interested in learning to what extent fiber strength may be substituted for fiber length. The answer to this question may be of considerable importance to the American cotton grower.

Thanks to the development of rapid techniques for measuring fiber properties and also to the program of cooperative spinning tests made possible by the spinners and the National Cotton Council of America, cotton breeders have made notable progress in obtaining new combinations of desirable properties. In recognition of this the spinners have agreed to furnish the breeders with data on actual mill performance of promising new strains.

On the basis of this information efforts are now being concentrated on rapidly increasing the new American-Egyptian variety, Pima 32, which performed unusually well in these tests. Further breeding work is indicated for other strains that showed up well in previous tests.

Brush Control can Double Returns from Range Land

Brush control leads all practices in degree of range improvement, according to E. H. McIlvain and D. A. Savage, U. S. Southern Great Plains Field Station, Woodward, Okla.

Effective treatment of sand sagebrush, Artemisia filifolia, and properly controlled grazing doubles returns from the land. Sixty percent of the sagebrush can be eradicated by close cutting in June for two successive years and keeping livestock off the range from June until fall of those years. Chemical control, however, is cheaper, faster, and more effective than mechanical control. One proper application of 2,4-D in May will kill 80 percent of sagebrush and many range weeds. No treatment to date has given satisfactory control of shinnery oak.

Deferred grazing or extreme moderation in grazing during the summer on sprayed or mowed areas is essential for maximum benefit from the control treatment. Excessive grazing following brush control may result in serious wind erosion and in range deterioration.

Peach Plots Located Near Leesburg, Va.

Ten acres of experimental peach plantings have recently been set out on a tract of land leased from a grower near Leesburg, Va. The location on a hillside just northeast of the Blue Ridge Mountains seems particularly free of frost hazard.

Dr. Leon Havis, (F&VC&D), reports that approximately 4,000 seedlings have been planted in the new location. In addition there are now about 600 trees of unnamed promising selections from the breeding work. The new location will make it possible gradually to reduce the peach plantings at Plant Industry Station from 35 acres now used to about 20 acres of the most frost-free sites.

Cherry Blossom Display Prolonged

Another use for growth-regulating compounds was demonstrated this spring when treatment with sprays prolonged the bloom displays of Oriental flowering cherries in Washington's noted Tidal Basin.

The experiments were conducted by Dr. Paul C. Marth (F&VC&D) in cooperation with the National Parks Service. In preliminary tests a year ago he found that sprays applied to individual limbs either just prior to or at full bloom delayed petal fall from 7 to 10 days and caused flowers of some varieties to develop a more intense pink pigmentation. Most effective compounds for this purpose were naphthaleneacetic acid, B-naphthoxyacetic acid, and para-chlorophenoxyacetic acid in concentrations of 5 to 20 parts per million.

This year sprays were applied to several hundred large trees. Those of the single-flowered Yoshino and Akebono varieties retained 35 to 80 percent of their blossoms from 3 days to a week longer than those unsprayed. The response varied in intensity with individual trees. An average of 23 percent of the flowers remained after 13 days on trees of the double-flowered Kwanzan variety. Comparable unsprayed trees held only 3.6 percent of their flowers during the same period. In these tests naphthaleneacetic acid gave more consistently favorable results than B-naphthoxyacetic acid. Para-chlorophenoxyacetic acid had a potent effect on petal retention but showed some foliage injury.

Tests with other species of flowering shrubs indicate that white-flowered dogwood is responsive to the petal sprays, particularly para-chlorophenoxyacetic acid. Other species--flowering quince, flowering almond, ornamental crabapples (nine varieties), aronia, azaleas (eight varieties), bridalwreath, and mockorange responded poorly or not at all to growth-regulator sprays in concentrations of 10 parts per million.

Tetraploid Apples and Peaches Under Study

Fertile hybrids from interspecific crosses of tetraploid peaches with tetraploid plums, cherries, and apricots appear a possibility in the light of findings by Dr. Haig Dermen (F&VC&D).

Using the colchicine technique Dr. Dermen has obtained tetraploids of the Alberta, Golden Jubilee, Halehaven, and Goldeneast varieties. All of these are being propagated and will be used in breeding as they come of fruiting age. Study of these and other tetraploid peaches and their seedling progenies will show the value of polyploidy in this fruit.

The giant sport of McIntosh apple has been found by Dr. Dermen to have a diploid epidermis covering tetraploid internal tissues in the stem. By forcing adventitious buds he has been able to obtain completely tetraploid shoots and from these to propagate completely tetraploid trees. Breeders are now crossing these with diploid varieties to obtain new triploid combinations. Some of the best commercial apple varieties now grown are triploids. It is believed the availability of the tetraploid McIntosh material will be of considerable value for developing desirable new varieties.

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* NEWS OF BUREAU SCIENTISTS TRAVELING ABROAD *
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Myers and Aamodt Attend World Grass Sessions

Various problems in breeding grasses, with special reference to developments in the past 20 years were described in addresses by Dr. W. M. Myers, head, and Dr. O. S. Aamodt, principal agronomist, (FC&D) before the Fifth International Grassland Congress just completed in Noordwijk, Holland.

Myers' talk, prepared by himself and Dr. R. J. Garber, director of the U.S. Regional Pasture Research Laboratory, State College, Pa., was on "Methods and Techniques of Breeding and Maintaining Grass Strains." Aamodt's was on "Problems in Breeding Pasture Plants."

The Congress brought agronomists from many countries, including several others from the United States. Following the sessions at Noordwijk, the scientists are spending a week visiting various experiment stations in Holland.

Myers and Aamodt plan to visit a number of other European stations well known for grass studies. Later they will attend the British Grassland Society summer meeting to be held in Leicestershire, England, July 11 to 15. Then they will visit other research centers, including the famous Rothamstead Experiment Station in England, the station at Aberystwyth, Wales, and grass stations in North Ireland.

Robinson Surveys Abaca Production Problems

The serious drop in yields of abaca, the marine cordage fiber now grown in Central America, calls for a comprehensive research in disease and insect control and in soil and cultural problems, according to Dr. B. B. Robinson (C&OFC&D). He has just returned from a month's tour of Panama, Costa Rica, Honduras, and Yucatan, Mexico, where he surveyed the problem for the Pan American Union.

Abaca, classified as a strategic material by the U. S. Munitions Board, was introduced into this hemisphere from the Philippines in 1925 by the late Dr. Harry T. Edwards, then a fiber technologist of this Bureau.

About 26,000 acres are now planted to the crop in Central America, and production last year exceeded 40 million pounds of fiber. This year's production as estimated will be 6 million pounds less.

Dr. Robinson's survey shows that factors most likely to account for the loss in yields are attacks by root rot and stem borer and soil depletion. He believes that research to solve these problems should be done in Central America, and he recommends that a fiber and research development program be set up to study the destructive agents.

Rands Observes Research in Southeast Asia

Two aspects of plant research in Southeast Asia--one, organization of a regional program to protect major crops from disease; the other, a glimpse of the difficulties and dangers under which research is now being done there--are given by Dr. R. D. Rands, head of Rubber Plant Investigations.

A State Department assignment to act as technical observer at the Phyto-Sanitary Conference of Southeast Asia took Dr. Rands to Singapore in April. The Conference was called by the British Commissioner General in Singapore to begin work on a regional plan for protecting crops from diseases now serious in other parts of the world. Growers in Asia are particularly concerned about the spread of South American leaf blight of rubber and the swollen shoot virus disease, which threatens to wipe out the cacao industry in West Africa.

About 17 plant pathologists and entomologists from nations and dependencies in the area attended the meeting. Dr. Rands acted as observer for the South Pacific Commission as well as for the United States.

In a convention to be submitted to the participating countries, the Conference recommended (1) collective action on control over importation of certain types of plant material as deemed necessary by a majority of the signatories; (2) enactment of laws and creation of an organization to affect such control; (3) establishment of quarantine, certification, and other measures for handling plant imports that constitute a threat to the region as a whole; (4) prohibition of importation of plant material considered hazardous; (5) permission to import plants under necessary precautions for scientific purposes; (6) agreement on collective measures for combatting serious pests or diseases within the convention area; (7) setting up an advisory commission consisting of a representative from each country; (8) appointment of a scientific secretary for coordination and liaison work; (9) establishment of a permanent center of information at the Commonwealth Institutes of Entomology and Mycology, London, to compile information on diseases and pests for transmission by the advisory commission to the signatory governments.

These and other recommendations will be submitted to about 12 countries in the region for ratification and for necessary unification of quarantine laws. Hope was expressed that the United States will cooperate in the program in the interest of her mandated territories and air traffic centers in the Pacific.

Following the Conference Dr. Rands spent a month visiting experiment stations and plantations in Malaya, Sumatra, and Java. He found the research workers seriously handicapped by unsettled conditions that have continued since the war. Terrorists' activities in some areas have made armed guards an essential part of station personnel. Several of Dr. Rands' visits to outlying experimental fields were possible only under military convoy. Scientists at the stations are hopeful about the future. Their big problem is recruitment of new personnel.

In spite of disturbed conditions in the Orient, Dr. Rands was able to escort a valuable shipment of sugarcane breeding material to the Java Experiment Station at Paseroeoean and to bring an exchange collection for the Division of Sugar Plant Investigations. A day's stop in London on his way home permitted him to confer with plant pathologists at the Institute of Mycology, Kew Gardens.

Nixon Returns from North Africa

Roy W. Nixon (F&VC&D) will return July 11 to his work at the U. S. Date Garden, Indio, Calif., following almost a year's study abroad. His research on the ecology of dates was made possible by a cooperative arrangement in which the Department continued paying his salary and a Guggenheim fellowship paid for his travel.

Mr. Nixon spent nearly 9 months abroad, most of the time in French North Africa. He also visited Spain. His objective was to learn whether during more than 1,000 years of cultivation, date varieties have become adapted to marginal areas where soil and climate originally were only partially suitable for their growth. He also studied different types of date culture and at least half of the more than 200 date varieties grown in that part of the world, concentrating on varieties peculiar to different regions.

Returning to this country, Mr. Nixon rounded out his research at the University of Pennsylvania where he examined translations from material excavated in southern Iraq. This provided him with information on the origin and development of the date palm as a cultivated crop. He is completing this assignment by further search in the University of California.

At Indio Mr. Nixon has notable work on date varieties, pruning, and cultural problems. He is the author of a very comprehensive Department Circular on the cultivation of dates in the United States.

NOTES ON PERSONNEL.

Simonson Becomes Assistant Head of Soil Survey

June 1, Dr. Roy Simonson took over duties as assistant to Dr. Charles E. Kellogg in directing the administrative and scientific work of the Soil Survey Division.

Dr. Simonson, 40, is a native of North Dakota and holds degrees from North Dakota State Agricultural College and the University of Wisconsin. Prior to joining the U. S. Department of Agriculture in 1943, he did soil survey work in North Dakota and Montana and served 5 years on the faculty of Iowa State College. He helped set up soil surveys of Okinawa, Guam, and the Palau Islands in 1947-48 while on a tour of duty with the U. S. Army Engineers.

Tribute to George Harrison

Fortune magazine for May carried a picture of George J. Harrison, senior agronomist and superintendent of the field station at Shafter, Calif., with the note that this civil servant is the breeder of the new 4-42 strain of Acala cotton, now being grown so profitably in California.

New Text on Field Crops by Martin and Leonard

Dr. John H. Martin (CC&D) and Dr. Warren H. Leonard, of Colorado Agricultural College, are the authors of "Principles of Field Crop Production," a college textbook of more than 1,100 pages to be published this summer by MacMillan.

The book treats more than 35 crops comprehensively, devoting a chapter to each of the major crops. It is presented in technical language but in a clear, easy-to-read style and is arranged for quick reference as well as detailed study. It will make a valuable reference work for agronomists and plant scientists. The illustrations include more than 300 photographs, drawings, and maps. The appendix contains excellent tables on seeds and seeding and a glossary of agronomic terms.

The authors began work on the book about 10 years ago. They have expanded the original outline to include many questions on agronomic problems that have come to this Bureau from all over the world. Dr. Leonard has tried out the book in mimeographed form on his college classes, and the two authors have reworked the material to cover new points brought out in class discussions.

Dr. Martin, who came to the Bureau in 1914 shortly after his graduation from Oregon State College, has made distinguished contributions to research in small grains. Dr. Leonard is also widely known in scientific and academic circles. He is now serving on the staff of General MacArthur as advisor on agricultural problems and policies in Japan.

Stephens Heads Cotton Research at North Carolina

Dr. S. G. Stephens, formerly cytogeneticist with the British Empire Cotton Corporation and later with the Texas Agricultural Experiment Station, now heads the cotton research of North Carolina Experiment Station. This is a joint program with the Bureau. The position he now occupies became vacant when Dr. Thomas Kerr was transferred to Beltsville to take charge of the Bureau fiber research program. Dr. Stephens is well known to cotton workers from his technical papers on cotton genetics and as co-author of "The Evolution of *Gossypium*," published by the Oxford University Press in 1947.

Allison to North Carolina

Dr. J. Lewis Allison (FC&D) has transferred to Raleigh, N.C., where he will be in charge of a new project on forage disease investigations for the North Carolina Experiment Station and will represent the Bureau in North and South Carolina, Virginia, Kentucky, and Tennessee. He has also been named research professor of plant pathology at North Carolina State. From 1940 when he joined the Bureau until 1946, Dr. Allison was located at Madison, Wis. During the past 3 years on the staff at Beltsville he has been project leader of disease investigations.

Erlanson Succeeds Morrison as Head of PEI

B. Y. Morrison, head of the Division of Plant Exploration and Introduction since 1934, relinquished that post to C. O. Erlanson, June 30.

A native of Georgia and a graduate of California and Harvard Universities, Mr. Morrison has been with the Bureau in various capacities since 1914. He is internationally known for his breeding of iris and narcissi, and, more recently, azaleas. During the past several years he has had charge of the planning and direction of the National Arboretum and he will remain on the Bureau staff continuing this work as Acting Director.

Mr. Erlanson came to the Bureau as associate ecologist in 1930. He is a native of Illinois and a graduate of Michigan University. His plant explorations, begun while he was on the University staff, have included expeditions to Greenland, Northern Europe, and Latin America. For the past 2 years, Mr. Erlanson has been responsible for the direction of RMA cooperative projects on plant exploration and introduction.

Gossard Heads Meridian Station

Atherton C. Gossard, formerly assistant horticulturist on the staff of the field station at Meridian, Miss., has been named superintendent of the station, succeeding Dr. J. M. Lutz, who recently was transferred to the new cooperative laboratory for potato investigations at Grand Forks, N. Dak.

ASAE Award to Simons

Joseph W. Simons (FB&RH) received a Paper Award at the June meeting of the American Society of Agricultural Engineers for his paper "Drying Seed Grain with Calcium Chloride," presented at the Chicago meeting of the Society in December 1947. The paper appeared in Agricultural Engineering, March 1948.

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* DEATHS *
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Dr. Harry T. Edwards, 71, authority on abaca or Manila hemp and other hard fibers, died May 6, in Washington. He had retired in 1945.

Dr. Edwards was graduated from Massachusetts Agricultural College in 1896. After serving 15 years as fiber expert and head of the Agricultural Department in the Philippines, he was appointed fiber technologist for the Bureau. He introduced abaca, or Manila hemp, so important in marine cordage, into tropical America in 1925. When World War II cut off the fiber supply from the Pacific the production in Latin America was expanded to nearly half of the prewar consumption of this country. In recognition of this, the Department of Agriculture presented him a science achievement award in 1945. He received the Meyer medal from the American Genetics Association in 1948.

O. F. Cook, who made notable contributions to American agriculture during the 40 years he conducted research in the Bureau, died at his home in Lanham, Md., April 23. He was 82 years old.

A native of Clyde, N.Y., a graduate of Syracuse University, Dr. Cook joined the Bureau in 1898. For many years he was in charge of the former Division of Cotton, Rubber and Other Tropical Crop Plants.

Dr. Cook's investigations led to two findings of tremendous value in cotton production. One was his discovery of the influence of spacing in the rows on the development of branches and fruiting of cotton plants. On his recommendation growers adopted spacing that hastened fruiting and reduced damage from boll weevils that come later. Another was his suggestion that cotton production be standardized in one-variety communities. This has enabled increasing numbers of growers to gain full benefits from new improved high-yielding varieties and manufacturers to obtain large lots of more uniform quality cotton.

Dr. Cook retired from the Bureau in 1937 but continued to serve as a collaborator and at the beginning of the war was given a special assignment to round up data on Castilla as a source of rubber for use in the emergency rubber project. He leaves a son, Robert C. Cook of Washington, and two daughters, Mrs. Elizabeth C. Upton, Lanham, Md., and Mrs. Helen C. Newman, Chicago.

Guy E. Yerkes, well known in experimental horticulture and on the Bureau staff for 28 years, died at Doctor's Hospital in Washington, June 2. He would have been 69 in November.

Mr. Yerkes was born at Stuart, Iowa, but spent his early years in Kansas and was graduated from Kansas State College in 1906. Later he attended the Yale School of Forestry. He served as a forester for the U. S. Military Reservation at Fort Riley, Kans., did horticultural work for the Oklahoma Agricultural and Mechanical College, and for a time carried on a florist and nursery business at Hutchinson, Kans.

His work in the Department began in 1918. He was assigned to field stations in New Jersey and North Carolina before coming to Washington. When Mr. Yerkes retired in 1946 he was commended by Secretary Anderson for his "exceptional contribution in breeding new azaleas."

Mr. and Mrs. Yerkes had disposed of their home on Dresden St., Kensington, Md., and had planned to move to Kansas when he was taken ill.

Alfred P. Dachnowski-Stokes, retired soil scientist, died at his home in Riverside, Calif., May 18. He was 74.

He was born in eastern Germany and educated at the Universities of Berlin and Vienna. He also held a doctorate from the University of Michigan.

Joining the Department in 1915, Dr. Dachnowski-Stokes made extensive surveys of peat and muck soils in this country and Alaska and western Europe and then studied the agricultural and industrial uses of these soils. He retired in 1942. He leaves his widow and two sons.

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* PUBLICATIONS *
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Departmental

Farmers' Bulletin 2000 Home Vegetable Gardening in the Central and High Plains and Mountain Valleys

Technical Bulletin 970 Fiber and Spinning Properties of Cotton: A Correlation Study of the Effect of Variety and Environment

Technical Bulletin 978 A Comparison of Pine-Oak Rusts

Circular 805 Handling and Shipping Southern-Grown Tomato Plants

Miscellaneous Publication 98 (rev.) Market Diseases of Fruits and Vegetables: Potatoes

Soil Survey Report Candler County, Georgia

J. A. R. 1392 Red Stem Canker of Cowpea, Caused by Phytophthora cactorum

J. A. R. 1398 Factors Affecting Pathogenicity of Pink Root Fungus of Onions

J. A. R. 1399 Decay Resistance of Seven Native Oaks

J. A. R. 1400 Chemical Removal of Encrustants from Dew-Retted Hemp Fiber

J. A. R. 1401 Effect of Heat on Black Rot and Keeping Quality of Sweetpotatoes

J. A. R. 1402 Tristeza Disease of Citrus

J. A. R. 1405 Fusaria Associated with Mimosa Wilt, Sumac, Wilt, and Pine Pitch

J. A. R. 1406 Viviporous Growth in Immature Barley Kernels

Other Agency and State Bulletins Prepared by Bureau Scientists

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Authors of research articles in outside journals are urged to report actual publication promptly to their Division representative. Indicate the precise authorship, title, periodical, and date of the issue containing the article. This is the only way we can keep a current and complete list of publications.

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ADMINISTRATIVE NOTES

Retirement with pay is one of the incentives now offered for continued participation in the National Guard and Defense Reserve Groups. Personnel can qualify for the pay on the completion of 20 or more years of satisfactory service in which they accumulate 50 points annually. These can be earned by attending meetings, taking training duty, and completing correspondence courses. Participation in the training also carries permission to purchase through ship service and post exchange stores and to use military recreation facilities. See your nearest military reserve unit for further information.

